

MARKED VERSION OF AMENDED CLAIMS - OZ 50815

3. An isolated nucleic acid sequence as claimed in claim 1 [or 2], wherein a sequence of the following protein groups is used as biosynthesis gene nucleic acid sequence of the fatty acid or lipid metabolism:  
  
fatty acid acyltransferase(s),  $\Delta 4$  desaturase,  $\Delta 5$  desaturase,  $\Delta 6$  desaturase,  $\Delta 9$  desaturase,  $\Delta 12$  desaturase,  $\Delta 15$  desaturase or a fatty acid elongase.
4. An isolated nucleic acid sequence as claimed in [any of claims 1 to 3] claim 1, wherein the derivatives mentioned under (c) have a homology at the amino acid level of 70%, preferably 80%, especially preferably of 90%, over the entire region of the sequence shown in SEQ ID NO: 2 (Program PileUp, J. Mol. Evolution., 25, 351-360, 1987, Higgins et al., CABIOS, 5 1989: 151-153).
7. The use of a nucleic acid sequence as claimed in claim 1 or of a nucleic acid construct [as claimed in claim 6] comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals for the generation of transgenic plants.
8. A vector comprising a nucleic acid sequence as claimed in claim 1 or a nucleic acid construct [as claimed in claim 6] comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals.
10. An organism comprising at least one nucleic acid sequence as claimed in claim 1, at least one nucleic acid construct [as claimed in claim 6] comprising said nucleic

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acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals or at least one vector [as claimed in claim 8] comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals or a nucleic acid construct comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals.

12. An organism as claimed in claim 10 [or 11], which is a plant, a eukaryotic microorganism or an animal.
13. An organism as claimed in [any of claims 10 to 12] claim 10, which is a plant, a fungus or a yeast.
14. An organism as claimed in [any of claims 10 to 13] claim 10, which is *Yarrowia lipolytica* [[sic]], *Saccharomyces cerevisiae* [[sic]], *Traustochytrium*, *Arabidopsis thaliana*, *Brassica napus* or *Linium* [[sic]] *usitatissimum*.
15. A transgenic plant comprising a nucleic acid sequence as claimed in claim 1 or a nucleic acid construct [as claimed in claim 6] comprising said nucleic acid sequence.
16. A method of targeting proteins involved in lipid or fatty acid biosynthesis into liposomes or lipid bodies, which comprises combining the protein-encoding nucleic acids and one of the following sequences to give a joint protein-encoding sequence:
  - a) a nucleic acid sequence with the sequence shown in SEQ ID NO: 1,

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- b) nucleic acid sequences which are derived from the nucleic acid sequence shown in SEQ ID NO: 1 as the result of the degeneracy of the genetic code,
  - c) derivatives of the nucleic acid sequence shown in SEQ ID NO: 1 which encode polypeptides with the amino acid sequences shown in SEQ ID NO: 2 and which have at least 60% homology at the amino acid level,
  - d) a nucleic acid sequence with the sequence shown in SEQ ID NO: 3 or the amino-terminal portion of the coding region of this sequence, and  
and ~~[[sic]]~~ introducing the resulting sequence into a eukaryotic organism.
17. A method of targeting proteins involved in lipid or fatty acid biosynthesis into liposomes or lipid bodies, which comprises introducing at least one nucleic acid sequence as claimed in claim 1 or at least one nucleic acid construct [as claimed in claim 6] comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals into an oil-producing organism.
18. A method of producing fatty acids or lipids, which comprises introducing at least one nucleic acid sequence as claimed in claim 1 or at least one nucleic acid construct [as claimed in claim 6] comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals into an oil-producing organism, growing this organism and isolating the oil contained in the organism.
19. A method of producing fatty acids, which comprises introducing at least one nucleic acid sequence as claimed in claim 1 or at least one nucleic acid construct

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[as claimed in claim 6] comprising said nucleic acid sequence wherein the nucleic acid sequence is linked to one or more regulatory signals into an oil-producing organism, growing this organism, isolating the oil contained in the organism and liberating the fatty acids.

20. A method as claimed in [any of claims 16 to 19] claim 16, wherein the organism is a plant or a eukaryotic microorganism.